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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,186	08/02/2006	Laurence Hermitte	0528-1187	6791

466 7590 01/20/2010

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EXAMINER	
BROWE, DAVID	
ART UNIT	PAPER NUMBER
1616	

NOTIFICATION DATE	DELIVERY MODE
01/20/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

Office Action Summary	Application No.	Applicant(s)	
	10/588,186	HERMITTE ET AL.	
	Examiner	Art Unit	
	DAVID M. BROWE	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-20 are pending.

Applicants timely submission of amendments and arguments on October 15, 2009 in response to the First Office Action on the Merits is acknowledged.

Withdrawal of Prior Objections

The specification and claims 7, 8, and 17 have been satisfactorily amended in response to objections presented in the first office action. Therefore, these objections are hereby withdrawn.

Withdrawal of Prior Claim Rejections - 35 USC § 102 and § 103.

Applicant's arguments, filed October 15, 2009, have been fully considered and are persuasive. The 35 USC §102(b) rejection of claims 1-4, 6, 9-10, 12-14, and 18-20; as well as the 35 USC §103(a) rejection of claims 5, 7-8, 11, and 15-17; presented in the first office action are hereby withdrawn. A new ground of rejection is being made below.

Accordingly, this action is non-final.

NEW GROUND OF REJECTION:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ågerup (U.S. Patent No. 5,827,937), in view of Miller *et al.* (U.S. Patent No. 6,174,999).

Applicant Claims

Applicants claim a process for the production of a biocompatible crosslinked gel comprising: a) starting a crosslinking reaction of a predetermined quantity of at least one biocompatible polymer in solution by the addition of a quantity of crosslinking agent; b) crosslinking said quantity of polymer; c) diluting the reaction mixture to decrease the

concentration of polymer in solution, and adding a supplemental quantity of polymer of a molecular weight higher than 500,000 Da in solution, and crosslinking; and d) stopping the crosslinking reaction by eliminating the crosslinking agent. The crosslinking reaction can be initiated in a basic or acidic medium; a supplemental quantity of crosslinking agent is added during the step of adding a supplemental quantity of polymer; and the step of stopping the crosslinking reaction is carried out by dialysis. The polymers are of natural origin and selected from the group consisting of hyaluronic acid, chondroitin sulfate, keratin, keratin sulfate, heparin, heparin sulfate, cellulose and its derivatives, alginates, xanthane, carrageenan, proteins, and nucleic acids, wherein at least one polymer not naturally present in the human body is crosslinked with at least one polymer naturally present in the human body. The crosslinking agent is a bifunctional or polyfunctional molecule comprising components selected from the group consisting of epoxys, epihalohydrins, and divinylsulfone.

Applicants also claim a gel prepared by the process that comprises at least one dispersed active agent; and is used to separate, replace, or fill a biological tissue or increase the volume of said tissue or else to supplement or replace a biological fluid.

Determination of the Scope and Content of the Prior Art (MPEP §2141.01)

Ågerup discloses a process for the production of a biocompatible crosslinked gel comprising: a) starting a crosslinking reaction of a predetermined quantity of at least one biocompatible polymer in solution by the addition of a quantity of crosslinking agent; b) crosslinking said quantity of polymer; and c) diluting the reaction mixture to decrease the concentration of polymer in solution, supplementing the polymer concentration in

solution and accelerating the rate of the crosslinking reaction (which would encompass adding supplemental quantities of polymer and crosslinking agent to the diluted reaction medium); and d) crosslinking to a viscoelastic gel (Col. 1, lns. 4-12; Col. 2, lns. 11-15, 48-67; Col. 3, lns. 1-2, 25-60; Col. 4, lns. 1-3, 6-30). The crosslinking reaction can be initiated in a basic or acidic medium, and the step of increasing the polymer concentration and crosslinking reaction rate need not necessarily proceed under the exact same conditions as when initiating the crosslinking (Col. 3, lns. 32-40; Col. 4, lns. 22-30). The polymers can be of natural origin and selected from the group consisting of hyaluronic acid, chondroitin sulfate, keratin, keratin sulfate, heparin, heparin sulfate, cellulose and its derivatives, alginates, xanthane, carrageenan, proteins, and nucleic acids, wherein at least one polymer not naturally present in the human body is crosslinked with at least one polymer naturally present in the human body (Col. 4, lns. 1-3, 6-9; Col. 7, lns. 21, 35, 48-49, 58-59). The crosslinking agent is a bifunctional or polyfunctional molecule comprising components selected from the group consisting of epoxides, such as epihalohydrins; and divinylsulfone (Col. 4, lns. 10-21).

Ågerup also discloses a gel prepared by the process that comprises at least one dispersed active agent; and is used to separate, replace, or fill a biological tissue or increase the volume of said tissue or else to supplement or replace a biological fluid (Col. 2, lns. 17-19, 24-38; Col. 4, lns. 34-36, 49-55; Col. 5, lns. 49-60; Col. 6, lns. 12-24).

Miller *et al.* disclose a process of preparing a biocompatible crosslinked polysaccharide gel that includes stopping a reaction by eliminating a non-polymeric

reactant from the reaction medium by dialysis, according to standard practice, prior to use (Col. 1, lns. 13-15; Col. 2, lns. 32-36; Col. 6, lns. 39-42).

Ascertainment of the Difference Between the Scope of the Prior Art and the Claims (MPEP §2141.012)

Ågerup discloses a process for the production of a biocompatible crosslinked gel comprising: a) starting a crosslinking reaction of a predetermined quantity of at least one biocompatible polymer in solution by the addition of a quantity of crosslinking agent; b) crosslinking said quantity of polymer; and c) diluting the reaction mixture to decrease the concentration of polymer in solution, and supplementing the concentration of polymer in solution, and crosslinking to a viscoelastic gel. Ågerup, however, does not explicitly disclose that the process can include the step of stopping the crosslinking reaction by eliminating the crosslinking agent by dialysis. This deficiency is cured by the teaching of Miller *et al.*

Finding of Prima Facie Obviousness Rational and Motivation (MPEP §2142-2143)

It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the present invention to modify the process of Ågerup by the teaching of Miller *et al.* to devise applicants invention. Dialysis is a standard technique well known in the art for separating molecules in solution or suspension by molecular weights based on their different rates of diffusion through a semipermeable membrane, and would be an ideal choice for separating high molecular weight polymers or polymer matrices from small molecular reactants in a medium. Since Miller *et al.* disclose the step of preparing

purified polymer mixtures, for direct use in drug delivery, by eliminating unreacted "activating agent" by dialysis, one of ordinary skill in the art would be motivated to employ dialysis for eliminating crosslinking agents from the reaction medium with the reasonable expectation that such a technique would successfully purify the reaction medium and render it in optimal condition for direct use in drug delivery.

In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 provides for the "use" of a gel according to claim 10, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it

merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 12 is further rejected under 35 U.S.C. 101 because the claimed recitation of a "use", without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID M. BROWE whose telephone number is 571-270-1320. The examiner can normally be reached on Monday-Friday 7:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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